Serial No.: 10/025,947

Filed: December 26, 2001

Page : 2 of 20

## Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

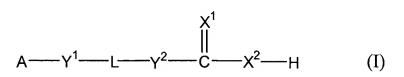
## **Listing of Claims**:

RECEIVED

NOV 2 4 2003

TECH CENTER 1600/2900

1. (Currently Amended) A compound of formula (I):



wherein

A is a cyclic moiety selected from the group consisting of  $C_{3-14}$  cycloalkyl, 3-14 membered heterocycloalkyl,  $C_{4-14}$  cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, and heteroaryl; the cyclic moiety being optionally substituted with <u>1-3 substituents</u>, each of which is independently selected from the group consisting of alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, or and alkylsulfonyl;

each of X1 and X2, independently, is O or S;

each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -O-, -S-, -N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-O-, -O-C(O)-N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-N(R<sup>b</sup>)-, -O-C(O)-O-, or a bond; each of R<sup>a</sup> and R<sup>b</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

L is a straight  $C_{3-12}$  hydrocarbon chain optionally containing at least one double bond, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{1-4}$  alkyl,  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, hydroxyl,

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 3 of 20

halo, amino, nitro, cyano, C<sub>3-5</sub> cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl, C<sub>1-4</sub> alkylcarbonyloxy, C<sub>1-4</sub> alkyloxycarbonyl, C<sub>1-4</sub> alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-O-, -O-C(O)-N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-N(R<sup>d</sup>)-, or -O-C(O)-O-; each of R<sup>c</sup> and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl; provided that when L contains two or more double bonds, the double bonds are not adjacent to each other; that when L contains three double bonds, said hydrocarbon chain is further substituted with C<sub>1-4</sub> alkyl, C<sub>2-4</sub> alkenyl, C<sub>2-4</sub> alkynyl, C<sub>1-4</sub> alkoxy, hydroxyl, halo, amino, nitro, cyano, C<sub>3-5</sub> cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl, C<sub>1-4</sub> alkylcarbonyloxy, C<sub>1-4</sub> alkyloxycarbonyl, C<sub>1-4</sub> alkylcarbonyl, or formyl; and further provided that when L contains zero double bonds, one double bond, or two conjugated double bonds and A is substituted phenyl or unsubstituted aryl, Y<sup>1</sup> is not a bond or CH<sub>2</sub>, and Y<sup>2</sup> is not a bond or CH<sub>2</sub>; or a salt thereof.

- 2. (Original) The compound of claim 1, wherein  $X^1$  is O.
- 3. (Original) The compound of claim 1, wherein  $X^2$  is O.
- 4. (Original) The compound of claim 1, where each of  $X^1$  and  $X^2$  is O.

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 4 of 20

(Original) The compound of claim 1, wherein each of Y<sup>1</sup> and Y<sup>2</sup>, independently, is -CH<sub>2</sub>,
-O-, -N(R<sup>a</sup>)-, or a bond.

- 6. (Canceled)
- 7. (Original) The compound of claim 1, wherein L is an unsaturated  $C_{4-8}$  hydrocarbon chain containing at least one double bond and no triple bond, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkyl,  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$  alkyl)<sub>2</sub>, or -N( $C_{1-2}$  alkyl)<sub>2</sub>.
- 8. (Original) The compound of claim 7, wherein the double bond is in trans configuration.
- 9-11. (Canceled)
- 12. (Original) The compound of claim 1, wherein A is phenyl, naphthyl, indanyl, or tetrahydronaphthyl.
- 13. (Currently Amended) The compound of claim 1, wherein A is phenyl optionally substituted with 1-3 substituents, each of which is independently selected from the group consisting of alkyl, alkenyl, hydroxyl, hydroxylalkyl, halo, haloalkyl, or and amino.

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 5 of 20

## 14-15. (Canceled)

- 16. (Original) The compound of claim 13, wherein L is an unsaturated  $C_{4-8}$  hydrocarbon chain containing only double bonds in trans configuration, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkyl,  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$  alkyl)<sub>2</sub>.
- 17. (Original) The compound of claim 16, wherein  $X^1$  is O;  $X^2$  is O; and each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -O-, -N( $\mathbb{R}^a$ )-, or a bond.

18-21. (Canceled)

22. (Currently Amended): A compound of formula (I):

$$A \longrightarrow Y^{1} \longrightarrow L \longrightarrow Y^{2} \longrightarrow C \longrightarrow X^{2} \longrightarrow H \qquad (I)$$

wherein

A is a cyclic moiety selected from the group consisting of aryl and heteroaryl; the cyclic moiety being optionally substituted with alkyl, alkenyl, alkynyl, alkynyl, alkoxy, hydroxylalkyl, or amino;

each of X1 and X2, independently, is O or S;

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 6 of 20

each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -O-, -S-, -N( $R^a$ )-, -N( $R^a$ )-C(O)-O-, -O-C(O)-N( $R^a$ )-, -N( $R^a$ )-C(O)-N( $R^b$ )-, -O-C(O)-O-, or a bond; each of  $R^a$  and  $R^b$ , independently, being hydrogen, alkyl, hydroxylalkyl, or haloalkyl;

L is a straight  $C_{3-12}$  hydrocarbon chain optionally containing at least one double bond, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{1-4}$  alkyl,  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, or amino, and further optionally interrupted by -O- or -N( $R^c$ )-, where  $R^c$  is hydrogen, alkyl, hydroxylalkyl, or haloalkyl; provided that when L contains two or more double bonds, the double bonds are not adjacent to each other; that when L contains three double bonds, said hydrocarbon chain is substituted with  $C_{1-4}$  alkyl,  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, or amino; and further provided that when L contains zero double bonds, one double bond, or two conjugated double bonds and A is  $C_{1-4}$  alkyl phenyl,  $C_{1-4}$  alkoxy phenyl, or unsubstituted aryl,  $Y^1$  is not a bond or  $CH_2$ , and  $Y^2$  is not a bond or  $CH_2$ ;

or a salt thereof.

23-24. (Canceled)

25. (Original) The compound of claim 22, wherein L is an unsaturated  $C_{4-8}$  hydrocarbon chain containing only double bonds in trans configuration, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkyl,  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$  alkyl)<sub>2</sub>.

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 7 of 20

26. (Original) The compound of claim 25, where in  $X^1$  is O;  $X^2$  is O; and each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -O-, N(R<sup>a</sup>)-, or a bond.

27-79. (Canceled)

80. (Currently Amended) A pharmaceutical composition, comprising an effective amount of a compound of formula (I):

$$A - Y^1 - L - Y^2 - C - X^2 - H$$
 (I)

wherein

A is a cyclic moiety selected from the group consisting of  $C_{3-14}$  cycloalkyl, 3-14 membered heterocycloalkyl,  $C_{4-14}$  cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, and heteroaryl; the cyclic moiety being optionally substituted with <u>1-3 substituents</u>, each of which is independently selected from the group consisting of alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, or and alkylsulfonyl;

each of  $X^1$  and  $X^2$ , independently, is O or S;

each of  $Y^1$  and  $Y^2$ , independently, is  $-CH_2$ -, -O-, -S-,  $-N(R^a)$ -,  $-N(R^a)$ -C(O)-O-, -O-C(O)- $N(R^a)$ -,  $-N(R^a)$ -C(O)- $N(R^b)$ -, -O-C(O)-O-, or a bond; each of  $R^a$  and  $R^b$ , independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

Serial No.: 10/025,947

Filed: December 26, 2001

a pharmaceutically acceptable carrier.

Page : 8 of 20

L is a straight  $C_{3-12}$  hydrocarbon chain containing at least one double bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{1-4}$  alkyl,  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, hydroxyl, halo, amino, nitro, cyano,  $C_{3-5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkyloarbonyloxy,  $C_{1-4}$  alkyloxycarbonyl,  $C_{1-4}$  alkyloarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R°)-, -N(R°)-C(O)-O-, -O-C(O)-N(R°)-, -N(R°)-C(O)-N(R<sup>d</sup>)-, or -O-C(O)-O-; each of R° and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl; or a salt thereof; and

- 81. (Currently Amended) The compound pharmaceutical composition of claim 80, wherein  $X^1$  is O.
- 82. (Currently Amended) The compound pharmaceutical composition of claim 80, wherein  $X^2$  is O.
- 83. (Currently Amended) The **compound pharmaceutical composition** of claim 80, where each of  $X^1$  and  $X^2$  is O.

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 9 of 20

84. (Currently Amended) The **compound pharmaceutical composition** of claim 80, wherein each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>, -O-, -N(R<sup>a</sup>)-, or a bond.

- 85. (Currently Amended) The **eompound pharmaceutical composition** of claim 80, wherein L is an unsaturated  $C_{4-8}$  hydrocarbon chain containing at least one double bond and no triple bond, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkyl,  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$  alkyl)<sub>2</sub>, or -N( $C_{1-2}$  alkyl)<sub>2</sub>.
- 86. (Currently Amended) The compound pharmaceutical composition of claim 85, wherein the double bond is in trans configuration.
- 87. (Currently Amended) The compound pharmaceutical composition of claim 1 80, wherein A is phenyl, naphthyl, indanyl, or tetrahydronaphthyl.
- 88. (Currently Amended) The compound pharmaceutical composition of claim 80, wherein A is phenyl optionally substituted with 1-3 substituents, each of which is indepenently selected from the group consisting of alkyl, alkenyl, hydroxyl, hydroxylalkyl, halo, haloalkyl, or and amino.
- 89. (Currently Amended) The **compound pharmaceutical composition** of claim 80, wherein L is an unsaturated C<sub>4-8</sub> hydrocarbon chain containing only double bonds in trans

Attorney's Docket No.: 12938-003002

Applicant: Hsuan-Yin Lan-Hargest, et al.

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 10 of 20

configuration, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkyl,  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$  alkyl)<sub>2</sub>.

- 90. (Currently Amended) The **compound pharmaceutical composition** of claim 89, wherein  $X^1$  is O;  $X^2$  is O; and each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -O-, -N( $\mathbb{R}^a$ )-, or a bond.
- 91. (Previously Added) A compound of formula (I):

$$A \longrightarrow Y^{1} \longrightarrow L \longrightarrow Y^{2} \longrightarrow C \longrightarrow X^{2} \longrightarrow H \qquad (I)$$

wherein

A is a cyclic moiety selected from the group consisting of  $C_{3-14}$  cycloalkyl, 3-14 membered heterocycloalkyl,  $C_{4-14}$  cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, and heteroaryl; the cyclic moiety being optionally substituted with alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, or alkylsulfonyl;

each of  $X^1$  and  $X^2$ , independently, is O or S;

 $Y^1$  is -CH<sub>2</sub>-, -S-, -N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-O-, -O-C(O)-N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-N(R<sup>b</sup>)-, -O-C(O)-O-, or a bond; each of R<sup>a</sup> and R<sup>b</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

$$Y^2$$
 is  $-CH_2$ -,  $-O$ -,  $-S$ -,  $-N(R^a)$ -,  $-N(R^a)$ - $-C(O)$ - $-O$ -,  $-O$ - $-C(O)$ - $-N(R^a)$ -,  $-N(R^a)$ - $-C(O)$ - $-N(R^b)$ -,

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 11 of 20

-O-C(O)-O-, or a bond;

L is a straight  $C_{3-6}$  hydrocarbon chain containing at least one double bond, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being substituted with  $C_{1-4}$  alkyl,  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, halo, amino, nitro, cyano,  $C_{3-5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$  alkyloxycarbonyl,  $C_{1-4}$  alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N( $R^c$ )-, -N( $R^c$ )--C(O)-O-, -O-C(O)-N( $R^c$ )-, -N( $R^c$ )-C(O)-N( $R^d$ )-, or -O-C(O)-O-; each of  $R^c$  and  $R^d$ , independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

or a salt thereof.

- 92. (Previously Added) The compound of claim 91, wherein X<sup>1</sup> is O.
- 93. (Previously Added) The compound of claim 91, wherein  $X^2$  is O.
- 94. (Previously Added) The compound of claim 91, wherein each of  $X^1$  and  $X^2$  is O.
- 95. (Previously Added) The compound of claim 91, wherein each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -N( $R^a$ )-, or a bond.

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 12 of 20

96. (Previously Added) The compound of claim 91, wherein L is an unsaturated  $C_{4-6}$  hydrocarbon chain containing at least one double bond and no triple bond, said unsaturated hydrocarbon chain being substituted with  $C_{1-2}$  alkyl,  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), -N( $C_{1-2}$  alkyl)<sub>2</sub>, -N( $C_{1-2}$  alkyl)<sub>2</sub>, halo, or monocyclic aryl.

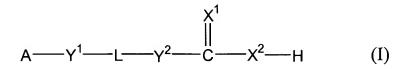
- 97. (Previously Added) The compound of claim 96, wherein said double bond is in trans configuration.
- 98. (Currently Amended) The compound of claim 91, wherein A is phenyl, naphthyl, indanyl, or tetrahydronapthyl tetrahydronaphthyl.
- 99. (Previously Added) The compound of claim 91, wherein A is phenyl optionally substituted with alkyl, alkenyl, hydroxyl, hydroxylalkyl, halo, haloalkyl, or amino.
- 100. (Previously Added) The compound of claim 91, wherein L is an unsaturated  $C_{4-6}$  hydrocarbon chain containing double bonds only in trans configuration, said unsaturated hydrocarbon chain being substituted with  $C_{1-2}$  alkyl,  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), -N( $C_{1-2}$  alkyl)<sub>2</sub>, halo, or monocyclic aryl.
- 101. (Previously Added) The compound of claim 100, wherein  $X^1$  is O;  $X^2$  is O; and each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -N( $R^a$ )-, or a bond.

Serial No.: 10/025,947

Filed: December 26, 2001

Page : 13 of 20

## 102. (New) A compound of formula (I):



wherein

A is a cyclic moiety selected from the group consisting of  $C_{3-14}$  cycloalkyl, 3-14 membered heterocycloalkyl,  $C_{4-14}$  cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, and heteroaryl; the cyclic moiety being optionally substituted with alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, or alkylsulfonyl;

each of X1 and X2, independently, is O or S;

each of  $Y^1$  and  $Y^2$ , independently, is  $-CH_2$ -, -O-, -S-,  $-N(R^a)$ -,  $-N(R^a)$ -C(O)-O-, -O-C(O)- $N(R^a)$ -,  $-N(R^a)$ -C(O)- $N(R^b)$ -, -O-C(O)-O-, or a bond; each of  $R^a$  and  $R^b$ , independently, being hydrogen, alkyl, alkenyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

L is a straight  $C_{3-7}$  hydrocarbon chain optionally containing at least one double bond, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{1-4}$  alkyl,  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, hydroxyl, halo, amino, nitro, cyano,  $C_{3-5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$  alkyloxycarbonyl,  $C_{1-4}$  alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N( $\mathbb{R}^c$ )-, -N( $\mathbb{R}^c$ )-C(O)-O-,

Serial No.: 10/025,947

Filed: December 26, 2001

or a salt thereof.

Page : 14 of 20

-O-C(O)-N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-N(R<sup>d</sup>)-, or -O-C(O)-O-; each of R<sup>c</sup> and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl; provided that when L contains two or more double bonds, the double bonds are not adjacent to each other; that when L contains three double bonds, said hydrocarbon chain is further substituted with C<sub>1-4</sub> alkyl, C<sub>2-4</sub> alkenyl, C<sub>2-4</sub> alkynyl, C<sub>1-4</sub> alkoxy, hydroxyl, halo, amino, nitro, cyano, C<sub>3-5</sub> cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl, C<sub>1-4</sub> alkylcarbonyloxy, C<sub>1-4</sub> alkyloxycarbonyl, C<sub>1-4</sub> alkylcarbonyl, or formyl; and further provided that when L contains zero double bonds, one double bond, or two conjugated double bonds and A is substituted phenyl or unsubstituted aryl, Y<sup>1</sup> is not a bond or CH<sub>2</sub>, and Y<sup>2</sup> is not a bond or CH<sub>2</sub>;